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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,181	01/23/2004	Sachin Navin Chheda	200314086-1	7860
22879	7590	02/25/2009		
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER HAMO, PATRICK	
			ART UNIT 3746	PAPER NUMBER
			NOTIFICATION DATE 02/25/2009	DELIVERY MODE ELECTRONIC

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/764,181

Filing Date: January 23, 2004

Appellant(s): CHHEDA ET AL.

John P. Wagner, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 25, 2008 appealing from the
Office action mailed August 8, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,973,608	Winick et al.	8-1998
6,299,408	Bhatia	10-2001
5,414,591	Kimura et al.	5-1995
6,791,836	Cipolla et al.	9-2004
2003/0112600	Olarig et al.	6-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 3, 18 and 19 stand rejected under 35 U.S.C. §102(b) as being anticipated by Winick, US 5,793,608.
2. Claims 2 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Winick in view of Bhatia et al., US 6,299,408.
3. Claims 1-9, 11-16 and 18-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura et al., US 5,414,591 in view of Cipolla et al., US 6,791,836.

4. Claims 10 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Cipolla, further in view Olarig et al., US 2003/0112600.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Winick et al., 5,793,608.

Winick discloses a fan cooling system for a computer including two fans 46, each coupled with a thermistor control system that senses the air temperature and regulates and varies the speed of the fans via the voltages of their motors (col. 2, ll. 5-18), the fans creating air flows through the chassis of a computer, the chassis including plenum 24 that acts as a duct in that it directs the flow to heat sinks 38, 39, 43 to cool a chip and other electronic devices within the chassis. In regard to claims 18 and 19, Winick discloses that power supply fans are controlled by a thermistor, which senses ambient air temperature, thereby increasing the speed of the fan by regulating the voltage of its motor (col. 2, ll. 10-17). Because a thermistor functions by varying a resistance in response to temperature, it is inherent that the thermistors had to be chosen based on a

reference temperature or otherwise calibrated by a technician to respond to specific air temperatures with corresponding signals to the motors. Therefore, it is a property of thermistors that a pre-defined parameter has been selected and that the temperature being measured by the thermistor is in effect being compared to this reference temperature. Furthermore, the ambient temperature is a performance metric of the fan in that, if the temperature of the chassis is acceptable, than the fans are adequately serving their purpose, or performing well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winick in view of Bhatia, 6,299,408.

Winick, as discussed above, discloses all of the limitations substantially as claimed except that the first motor and the second motor are removably coupleable with the fan cooling system.

However, Bhatia teaches a computer cooling fan where the blade portion of the fan 710 (see fig. 8) is separate from the motor 210 and driven via the motor by flexible shaft 705 so that there is a variety of options in placement of the motor (col. 6, ll. 12-20)

while decreasing the overall size that comes with an integral blade/motor fan (col. 1, II. 15-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the computer cooling fans of Winick with the separate blade and motor fans of Bhatia in order to decrease the space taken up by the fans and to increase options of where to place the motors. It would further have been obvious to one of ordinary skill that the motor, shaft and fan all being separate pieces, the motor would now be removably coupleable, in case of motor wear or the like.

Claims 1-9, 11-16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, 5,414,591 in view of Cipolla, 6,791,836.

Kimura discloses a storage system for electronics using a plurality of blower fans 13 to pass cooling air through a duct 2 (see fig. 10) in a plurality of disk units 31a and conveying the flow to heat sinks 18 positioned on the electronic components such as circuit boards 32. The fans are operated at a first operating speed (col. 5, II. 23-26), and a plurality of current monitoring devices 21 determine the amount of current used by each respective motor driving each fan (col. 14, II. 49-50).

However, Kimura does not disclose the following taught by Cipolla: first fan 104 coupled with first motor 103, a second fan 104 coupled with a second motor 103, a control system (148, 136, 116, 22, 114, and 120) coupled with both motors 103 and 104, first and second motors of variable speed (col. 4, II. 59-64), a motor performance monitoring system (116 and 114) determining a performance metric 114 for each motor, first and second tachometers 114 determining the rotational speed of the first and

second motors respectively (col. 4, II. 44-48), a comparator 116 for comparing measured performance metrics of each motor with pre-defined parameters (col. 5, II. 1-12), a power control subsystem 120, a controller 116, and controller 116 is coupled with power control subsystem 120 and generates a command to power control subsystem 120 in response to a signal from the comparator 116 (col., I1.59-64 and col. 5, II. 1-12).

It would have been obvious to one of ordinary skill in the art to have substituted the more robustly-controlled active control fans of Cipolla for the nominal, relatively primitive passive controlled fans of Kimura in order to better control the flow of cooling air in response to the requirements of the electronic devices being stored in the storage system of Kimura.

Regarding the limitations that the first motor and second motor are removably couplable with said fan cooling system and disengaging the first fan motor, making elements of an apparatus separable fails to patentably distinguish this invention over the prior art. (See MPEP § 2144.04.V.C). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the motor removable from the fan cooling system.

Regarding the limitation that the controller causes said power control subsystem to dynamically alter the operating speed of said second fan when said performance metric of said first motor exceeds said pre-defined parameter, Kimura teaches that the operating speed of a second fan is altered when the first motor exceeds a performance metric, where the performance metric is current (col. 15, I1.23 -53). Cipolla teaches that controller 116 causes power control subsystem 120 to dynamically alter the operating

speed of one or more fans based on pre-defined parameters (col. 4, ll. 59-64 and col. 5, ll.1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kimura in view of Cipolla to detect another operational condition of the fan.

Claims 10 and 17 are rejected unde'r 35 U.S.C. 103(a) as being unpatentable over the references as applied in claims 1, 4, and 11 above, and further in view of Olarig 2003/0112600.

The references as applied above teach all of the limitations substantially as claimed except for the state machine (page 2, paragraph 26, ll.3-5) taught by Olarig. Olarig teaches that a state machine and a controller are essentially interchangeable in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the controlled fan flow of the references as applied above in view of Olarig in order to substitute a controller with a state machine (Olarig, page 2, paragraphs 23 - 26).

(10) Response to Argument

35 U.S.C. § 102(b) – Claims 1, 3, 18 and 19

Appellants argue that Winick fails to anticipated claims 1, 3, 18 and 19 because it fails to disclose "a duct system for conveying said first air flow and said second air flow to at least one heat sink." Appellants argue that the air flow generated by only one fan 46 is conveyed over any of heat sinks 38, 39, 43, using the arrows supplied in fig. 1 as evidence of this assertion. However, the arrows in fig. 1 are not dispositive and absent

any specific written disclosure, may reasonably be deemed merely illustrative. Winick discloses no dividers of any kind within plenum 24 that would differentiate the space from which the two fans draw air so that air drawn into either fan passes over the heat sinks. For example, supposing the fan to the right were to cease functioning for any reason but the fan on the left were to continue with normal operation, the air flow created by the fan would include air drawn from the entire plenum and all air supply holes 18, not just those directly perpendicular to the orientation of the fan.

Moreover, Appellants also argue that the plenum of Winick does not constitute a duct as claimed because it does not "convey" (claim 1) or "guide" (claim 18) the air flow. The examiner respectfully disagrees with this characterization and reasserts that interpreting the plenum as a duct system is within examination guidelines of reading each and every claim with the broadest reasonable interpretation. If not for the plenum, a confined space defined by the walls of the casings, the fans would draw in air flow from outside of the casing as well as from the immediate surroundings of the electronic components. The boundaries of the plenum define the only passageway for air entering holes 18 out of the casing, which is through fans 46. Therefore, it is reasonable to interpret the plenum as guiding and conveying the fluid flow.

35 U.S.C. § 103(a) – Claims 2 and 11

The argument that the combination of Winick and Bhatia does not disclose the duct system as claimed is rendered moot by the response above, wherein examiner

reasserts the interpretation of the plenum of Winick as a duct system as a proper interpretation.

Appellants also argue that Bhatia does not teach that "said first motor and said second motor are removably coupleable with said fan cooling system" (claim 2) or that "a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system" (claim 11). However, the examiner feels that this was duly addressed in the prior rejection, reiterated above. Bhatia teaches a single fan with three *separate* pieces- motor, shaft, and blades- coupled to each other. That the pieces are separate as opposed to the fans common in the art, such as Winick, wherein the blades are integrally placed on the motor, makes it obvious that the pieces are removably coupled.

See MPEP § 2144.04.V.C. Separate pieces are removable from each other.

Furthermore, because Winick teaches a plurality of fans, it would have been obvious to apply the removably coupled blades and motor to each fan disclosed by Winick, thereby meeting the limitations of claims 2 and 11 that recite two or a plurality of fans and motors.

35 U.S.C. § 103(a) – Claims 1-9, 11-16 and 18-22

Appellants argue that the combination of Kimura and Cipolla does not satisfy the requirements of a *prima facie* case of obviousness.

Appellants argue that Kimura does not teach "a duct system for conveying said first air flow and said second air flow to at least one heat sink." However, in arguing that Kimura fails to disclose this because the air flows of separate ducts remain separate,

thereby teaching away from the claimed embodiment, Appellant seems to be arguing that which is not claimed. A duct *system* is claimed for guiding air flow to *at least one* heat sink. The separate ducts guide separate flows to separate heat sinks. The ducts together make up a duct system, and all the flow is directed to a heat sink. Whether or not it is the same heat sink, same duct, or same flow as another duct does not matter as far as the claims are recited. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Even if the claims recited that which the Appellants allege, the cross flow shown by the arrows in fig. 5 demonstrate that the separate fans do in fact convey some of the air into another fan's duct, whereby two fans may convey air into the same duct and over the same heat sink.

In response to Appellant's argument that inventions of Kimura and Cipolla are improperly combined, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the present case, the active control taught by Cipolla is a technological improvement over the passive control of Kimura that would certainly make some components of Kimura superfluous and redundant, but it would not make the combination inoperable to apply the principle of active cooling as taught by Cipolla to Kimura.

In regard to Appellant's arguments that the facts of *In re Dulberg* were significantly different from that present in this application and that the court's holdings that "if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose" does not apply, examiner respectfully disagrees. Removing a motor from its assembly for routine testing and maintenance is common in the art, and provides a very compelling reason for removability. In the examiner's opinion, this satisfies the holding of the court.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Patrick Hamo/

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